

Group Art Unit: 2833
Examiner: Gushi, R.



Atty. Ref.: FP01-003US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Masahide Hio
Eiji Kojima
Appl. No. : 09/893,931
Filed : June 28, 2001
For : INSULATION-DISPLACEMENT TERMINAL FITTING
Assistant Commissioner for Patents
Washington, D.C. 20231

#13
12-11-02
Jm.

TECHNOLOGY CENTER 2800

DEC 12 2002

RECEIVED

BRIEF ON APPEAL

Sir:

The final rejection of claims 9 and 12-14 was appealed with a Notice of Appeal that was received in the United States Patent and Trademark Office on October 3, 2002. This Brief is submitted in triplicate in furtherance of that Appeal.

It is urged that the rejections be reversed and that all of the appealed claims be allowed.

I. Real Party in Interest:

The assignee and real party in interest is Sumitomo Wiring Systems, Ltd.

II. Related Appeals and Interferences:

There are no related appeals or interferences.

III. Status of Claims:

All of the remaining claims were finally rejected under 35 USC 103(a) as being obvious over U.S. Patent No. 3,867,005 to Hoppe, Jr. considered in view of U.S. Patent No. 5,934,928 to Endo et al. and U.S. Patent No. 4,040,702 to McKee et al.

IV. Status of Amendments:

Claim 9 is the only independent claim in the application and was amended in an Amendment After Final Rejection that was received in the United States Patent and Trademark Office on September 11, 2002. An Advisory Action was mailed on September 19, 2002 and indicated that the Amendment After Final Rejection would be entered for purposes of appeal.

V. Summary of Invention:

The invention relates to an insulation-displacement terminal fitting with an elongate base wall and opposed first and second side walls that project substantially perpendicularly from the first and second side edges of the base wall (page 5, lines 5-8; claim 9, lines 1-3). First and second opposed V-shaped insulation-displacement portions project respectively from the first and second side walls and into the wire-receiving space (page 5, lines 17-19; page 6, lines 3-5; claim 9, lines 3-5). The insulation-displacement terminal fitting of the subject invention also includes first and second substantially planar locks projecting respectively from the first and second side walls into the wire-receiving space in positions spaced from the insulation-displacement portions (page 6, lines 10-12; claim 9, lines 5-7). The planar locks are aligned substantially normal to the respective side walls (page 6, lines 12-14; claim 9, lines 7-8). Additionally, the locks are formed respectively with edges that

define portions of the locks furthest from the side walls (FIGS. 1 and 2; page 6, lines 14-22; claim 9, lines 8-10).

In view of the above-described construction, a wire can be aligned parallel to the longitudinal direction of the terminal fitting and pushed between the side walls (page 7, lines 6-7). Pushing forces on the wire cause the V-shaped projecting ends of the insulation displacement portions to cut open the resin coating of the wire and to connect the core of the wire with the insulation-displacement portions (page 7, lines 9-13). Simultaneously, the wire is pushed between the pair of locks. As a result, the locks bite into the resin coating (page 7, lines 16-18). The V-shaped insulation-displacement portions achieve large contact areas with the core of the wire (page 7, last line - page 8, line 2). At the same time, the locks are substantially normal to the longitudinal axis of the wire and are held in contact with a cut open surface of the resin coating on the wire (page 8, lines 3-6). Accordingly, a force to pull the wire back along its longitudinal direction is resisted, and a loose backward movement of the wire can be prevented by the locks (page 8, lines 5-8). Thus, the locks restrict loose longitudinal movement of the wire, while the V-shaped insulation displacement portions ensure a large contact area with the core of the wire (page 8, lines 10-13).

The invention defined by claim 12 on appeal relates to an insulation-displacement terminal fitting as described above, but where the locks project a sufficient distance for contacting the core of the terminal fitting (page 7, lines 18-19; claim 12).

Claim 13 on appeal depends from claim 12 and further defines the locks and the insulation-displacement portions as projecting substantially equal distances from the side walls (page 6, lines 18-21; claim 13).

Claim 14 depends from appealed claim 9 and further defines the terminal fitting as having an engaging portion for engaging a mating terminal (page 5, lines 10-12; claim 14).

VI. Issues:

The sole issue is whether the claims are obvious under 35 USC 103(a) based on the prior patent to Hoppe, Jr. considered in view of Endo et al. and McKee et al.

VII. Grouping of the Claims:

The claims are believed to rise and fall together.

VIII. Arguments:

A. Hoppe, Jr.

U.S. Patent No. 3,867,005 (Hoppe, Jr.) is the primary reference relied upon in the rejection of each of the claims on appeal. FIG. 1 of Hoppe, Jr. shows an insulation-displacement terminal fitting with a front mating end to the right in FIG. 1 of Hoppe, Jr. and a rear end to the left in FIG. 1 of Hoppe, Jr. A wire-receiving portion extends forwardly from the rear end of the Hoppe, Jr. terminal fitting. The wire-receiving portion includes a bottom wall and a pair of opposed side walls extending perpendicularly up from the bottom wall. The side walls of Hoppe, Jr. are characterized by two opposed pairs of generally V-shaped or U-shaped insulation-displacement portions identified generally by the numerals 59-62 in FIGS. 4 and 5 of the reference. Hoppe, Jr. clearly teaches that an insulation-displacement terminal fitting should have a U-shaped insulation-displacement portion with "an enlarged, smooth curved surface" (col. 4, line 33) to form a "wiping section" (col. 4, line 35). Hoppe, Jr. explains that this construction will "provide enlarged wiping surfaces together with the desired degree of resiliency to yieldingly receive the metallic conductor" (col. 2, lines 53-54). Hoppe, Jr. provides no suggestion of incorporating a non-curved non-resilient structure into a

terminal fitting. In fact, Hoppe, Jr. clearly states that the resiliency of the U-shaped insulation-displacement portions strengthen the side walls of the terminal fitting to prevent deformation of the side walls during manufacturing processes (col. 2, lines 22-26) or during termination of the wire (col. 4, line 50; col. 5, lines 19-27). Thus, Hoppe, Jr. clearly teaches that structures other than the resilient U-shaped insulation-displacement portions with an arcuate conductor-engaging wiping section are undesirable. However, the angled or curved surfaces of the V-shaped or U-shaped insulation-displacement portions of Hoppe, Jr. do not adequately restrict loose longitudinal movement of the wire that could be generated in response to longitudinal forces exerted on the wire. Such a longitudinal loose movement of the wire can degrade the quality of the electrical connection between the conductive core of the wire and the terminal fitting.

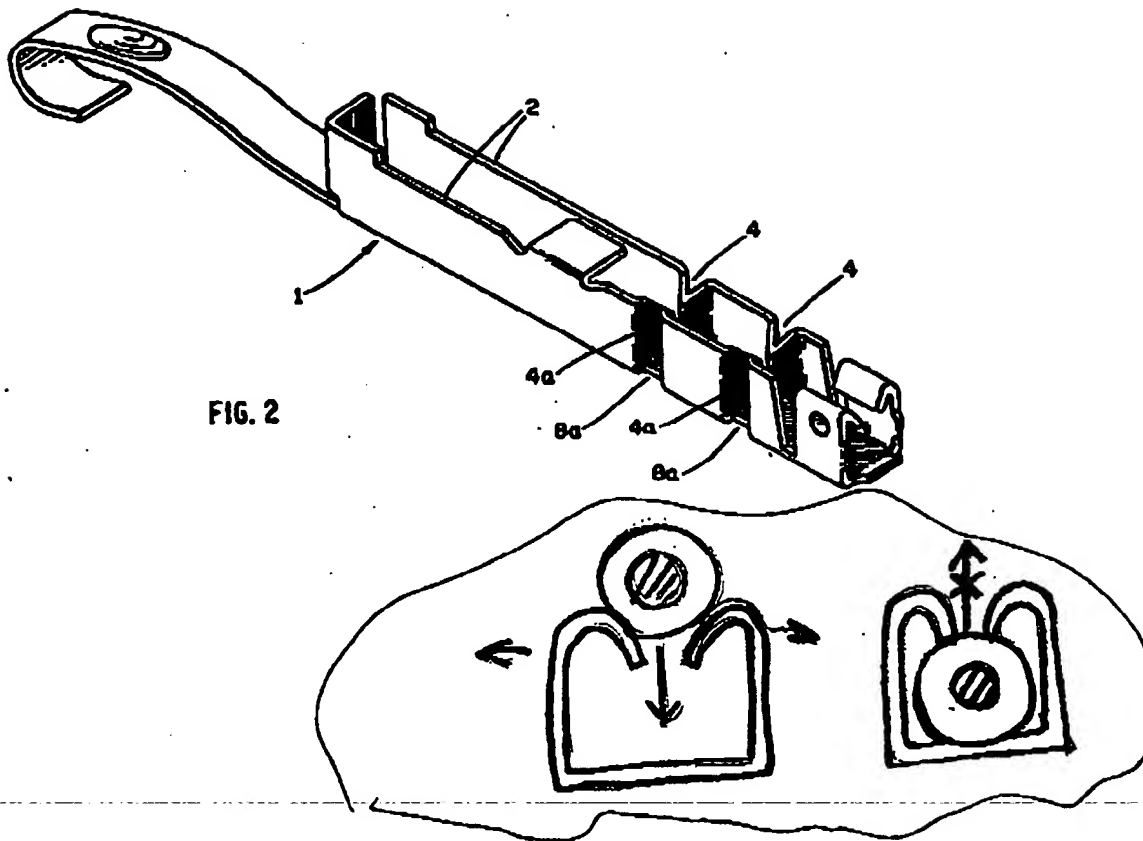
FIG. 8 of Hoppe, Jr. shows a construction that enables a V-shaped or U-shaped insulation-displacement portion to be placed at the rear end of the terminal fitting. In particular, the V-shaped or U-shaped insulation-displacement portions 99 and 100 in FIG. 8 of Hoppe, Jr. are connected to the side walls of the terminal fitting at the rear end of the terminal fitting. Thus, flaps extend from the extreme rear ends of the side walls of the Hoppe, Jr. terminal fitting. The flaps are bent forwardly into the wire-receiving space and then are curved back out toward the respective side walls. The insulation-displacement portions 99 and 100 in FIG. 8 of Hoppe, Jr. have virtually the same shape and the same wire engagement characteristics as the insulation-displacement portions disposed more forwardly on the Hoppe, Jr. terminal fitting. In particular, the insulation-displacement portions 99 and 100 in FIG. 8 of Hoppe, Jr. have a curved wiping surface that will perform similar to the V-shaped or U-shaped insulation displacement portions 59-62 shown in FIGS. 1-5.

Specifically, the curved surfaces of the bent insulation-displacement portions 99 and 100 in FIG. 8 of Hoppe, Jr. are not resistant to pulling forces and permit loose movements of the wire in response to pulling forces.

B. McKee et al.

The Examiner appeared to acknowledge the deficiencies of Hoppe, Jr. when applied to the claims on appeal. Accordingly, the Examiner turned to McKee et al. in an effort to overcome certain of the deficiencies of Hoppe, Jr. In particular, the Examiner referred to the unnumbered planar elements shown at the rear end of the McKee et al. terminal fitting and concluded that these unnumbered elements teach the use of planar locks projecting from a side wall of a terminal fitting. The Examiner concluded that such planar locks could be incorporated into the Hoppe, Jr. reference.

The McKee et al. reference does not discuss the function of the unnumbered planar elements relied upon by the Examiner. However, the record is accompanied by a sketch prepared by the inventor herein to show the only plausible function of these structures, and that sketch is reproduced below. In particular, the unnumbered structures at the rear end of the McKee et al. terminal fittings are intended to yield as the wire is inserted down into the wire-receiving space. These unnumbered structures then will resiliently return toward an undeflected condition when the wire reaches the bottom wall of the terminal fitting. Hence, the wire will effectively be trapped in the wire-receiving space and will be prevented from vertical movement normal to the longitudinal direction of the wire out of the terminal insertion space. These unnumbered elements will have no effect at all on longitudinal forces exerted on the wire.



C. Endo et al.

The Examiner apparently appreciated that the unnumbered elements of McKee et al. have no portion aligned normal to the longitudinal direction of the wire. In an effort to address that deficiency of McKee et al, the Examiner turned to U.S. Patent No. 5,934,928 (Endo et al.). The Endo et al. reference acknowledges several of the appellant's assertions herein and concludes that the Hoppe, Jr.-type of insulation-displacement portions "are arcuate in shape". Accordingly the Endo et al. reference concludes that "the force of holding the covered electric wire is weak" when "external forces are applied in the axial direction of the electric wire while the wire harness is being pulled" (col. 2, lines 14-19). Thus, the Endo et al. reference explains that the wire easily slips off the arcuate insulation displacement

portions. Endo et al. proposes several alleged solutions to these noted deficiencies of arcuate or V-shaped insulation-displacement portions. However, the Endo et al. reference also does not want edges of the metal to contact the conductive core of the wire because the edges are not plated (col. 4, last paragraph). Thus, the Endo et al. reference teaches various ways of thinning, coining, bending and/or folding to ensure that the unplated edges do not approach the conductive core of the wire. The Endo et al. terminal fitting achieves this plated surface contact without the V-shaped structures of Hoppe, Jr. that Endo et al. consider undesirable.

The §103 Combination

It is submitted that nothing in the Hoppe, Jr., McKee et al. and Endo et al. references suggests their hypothetical combination, and that such a combination is unlikely. It is also submitted that the hypothetical combination of these references would not suggest the invention defined by the claims on appeal.

Hoppe, Jr. clearly requires a large smooth curved wiping surface to cut through the insulation and contact the core of the wire with a resilient yielding. Hoppe, Jr. explains that his resilient U-shaped insulation-displacement portions will prevent the side walls of the terminal fitting from flexing away from one another as the wire is urged between the side walls. Hoppe, Jr. does not want rigid insulation displacement portions because they do not yield and because they cause deformation of the side walls from which the rigid insulation displacement portions extend.

Endo et al. acknowledges that the Hoppe, Jr.-type of structure exists, but concludes that such a structure is undesirable precisely because of the curved shape and resiliency that Hoppe, Jr. considers important. Accordingly, Endo et al. teaches that the

insulation-displacement portions should be rigid and should have complex thinning, coining and/or folding to achieve surface contact with the conductive core. Thus Endo et al. clearly teaches away from a Hoppe, Jr.-type of insulation-displacement portion and provides a rigid structure that Hoppe, Jr. would consider unacceptable.

McKee et al. is not considered to add anything relevant to either of the Hoppe, Jr. and Endo et al. references. In particular, McKee et al. teaches the V-shaped or U-shaped insulation-displacement portions of Hoppe, Jr. for cutting through the insulation and contacting the core of the wire. The planar structures of McKee that were relied upon by the Examiner merely function to trap the wire in the terminal fitting and to prevent the wire from moving away from the bottom wall of the terminal fitting. The planar structures in McKee et al. clearly do not cut into the insulation and clearly would not perform their intended function if the alignment was changed into a perpendicular alignment with the respective side walls.

The Hoppe, Jr./Endo et al. combination of references relied upon in the final rejection would require the skilled artisan to ignore the Hoppe, Jr. teaching to avoid rigid structures to cut the insulation because such rigid structures would bow the side walls out as the wire is urged between the side walls. The Hoppe, Jr./Endo et al. combination also would require the skilled artisan to ignore the Endo et al. teaching regarding the drawbacks of U-shaped or V-shaped insulation-displacement portions that can flex. Thus the combination requires the skilled artisan to go precisely against the teaching of both references.

None of the references discloses or suggests "first and second substantially planar locks projecting respectively from the first and second side walls into the wire-receiving space" with the "locks being aligned substantially normal to the respective side walls" and

with the "locks being formed respectively with first and second edges defining portions of the first and second locks furthest from the respective first and second sidewalls."

Furthermore, none of the references teach or suggest a terminal fitting with both "V-shaped insulation-displacement portions" and with "planar locks... aligned substantially normal to the respective side walls" so that "the edges of the locks bite into at least the resin coating for resisting a pullout force on the wire." Hoppe, Jr. has no planar locks and clearly teaches the importance of smoothly curved resilient wiping sections on the insulation displacement portions. McKee et al. shows planar structures that could not possibly be aligned normal to the respective side walls. Endo et al. teaches that the Hoppe, Jr.-type of arcuate resilient insulation-displacement portions are bad, and requires an insulation-displacement portion with complex folds to keep the edges spaced from the core of the wire.

The rejection requires the skilled artisan to ignore these respective teachings of the references and to pick and choose elements shown in the references for combination. The rejection further requires the skilled artisan to then revise these disparate elements in an effort to meet the limitations of the claims. It is submitted that the only way these references would be deconstructed, revised and then reconstructed in the manner suggested in the final rejection would be through the use of hindsight gained from the appellant's teaching (see *In re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992); *In re Geiger*, 2 USPQ2d 1276 (Fed. Cir. 1987); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 220 USPQ 503, 312 (Fed. Cir. 1983)). A rejection based on obviousness cannot be supported by the hindsight selection and revision of elements in disparate prior art references.

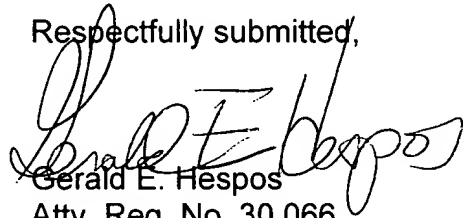
The Board's attention is directed respectfully to *In re Fine*, 5 USPQ2d 1596 (Fed. Cir. 1988). There the claimed invention required a gas chromatograph, a converter to convert nitrogen compounds into nitric oxide and a detector for measuring the level of nitric oxide. The claim was rejected as being obvious over Eads in view of Warnick. Eads showed a sulfur dioxide detector, but no nitric oxide detector. Warnick showed a nitric oxide detector. The Court noted that Eads says the presence of nitrogen is undesirable because the concentration of those components in the sulfur detector is adversely affected by nitrogen compounds in the sample. Thus, the Court noted that instead of suggesting that the system be used to detect nitrogen compounds, Eads deliberately seeks to avoid them, "it warns against rather than teaches *Fine's* invention" (*Id.* at 1599). The Court then analyzed the secondary reference to Warnick, and concluded that the claimed invention "teaches advantages not appreciated or contemplated" by the secondary reference. Accordingly, the Court held that the Board erred in affirming the Examiner's conclusion that it would have been obvious to combine the nitric oxide detector of the secondary reference into the primary reference. Thus, the final rejection was reversed.

It is believed that the situation here is even more compelling than in *In re Fine*. Here, as in *In re Fine*, neither reference suggests the combination. In *In re Fine*, the primary reference taught against the hypothetical combination relied upon to support the rejection and the secondary reference was silent as to the combination. In this case, both the primary reference (Hoppe, Jr.) and the secondary reference (Endo et al.) teach away from the critical features of the other reference. Thus, there would be no motivation to combine these references and to provide the claimed terminal fitting that has V-shaped insulation-displacement portions and planar locks "substantially normal to the respective side walls" and

formed with "first and second edges defining portions of the first and second locks furthest from the first and second side walls." As concluded in *In re Fine*, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention" (*Id.* at 1600).

The Board is urged to consider all of the arguments presented above and to reverse the final rejections. All remaining claims should be allowed.

Respectfully submitted,



Gerald E. Hespos

Atty. Reg. No. 30,066

Customer No. 001218

CASELLA & HESPOS LLP

274 Madison Avenue - Suite 1703

New York, NY 10016

Tel. (212) 725-2450

Fax (212) 725-2452

Date: December 4, 2002

VIII. Appendix - Claims on Appeal

9. An insulation-displacement terminal fitting, comprising: a base wall, first and second opposed side walls projecting from opposite sides of the base wall and defining a wire-receiving space between the side walls, first and second opposed V-shaped insulation-displacement portions projecting respectively from the first and second side walls into the wire-receiving space, first and second substantially planar locks projecting respectively from the first and second side walls into the wire-receiving space in positions spaced from the insulation-displacement portions, said planar locks being aligned substantially normal to the respective side walls, said first and second locks being formed respectively with first and second edges defining portions of the first and second locks furthest from the respective first and second side walls, whereby a wire can be inserted into the wire-receiving space sufficiently for cutting a resin coating of the wire by projecting ends of the insulation-displacement portions and bringing a core of the wire into contact with the projecting ends of the insulation-displacement portions, and wherein the edges of the locks bite into at least the resin coating for resisting a pull out force on the wire.

12. An insulation-displacement terminal fitting according to claim 9, wherein the locks project by a sufficient distance for contacting the core.

13. An insulation-displacement terminal fitting according to claim 12, wherein the locks and the insulation-displacement portions project substantially equal distances from the respective side walls.

14. An insulation-displacement terminal fitting according to claim 9, comprising a front end defining an engaging portion for engaging a mating terminal, the insulation displacement-terminal portions being rearward of the engaging portion, the locks being rearward of the insulation-displacement portions.